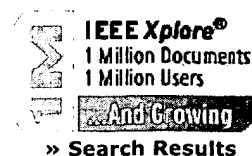


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Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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L2	4	("6,697,767") or ("6,611,823") or ("5,519,605") or ("5,091,843")).PN.	US-PGPUB; USPAT	OR	OFF	2005/03/04 14:40

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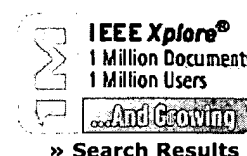
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**1 Design of bi-causal inverse models for non-minimum phase systems and its applications to precision tracking control**
*Jin-Jae Chen; Chia-Hsiang Menq;*

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**2 A study of human hand position control learning-output feedback inverse model**
*Oyama, E.; Maeda, T.; Tachi, S.;*

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Engineering in Medicine and Biology Society, 2001. Proceedings of the 23rd Annual

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**5 Mathematical and experimental method to obtain the inverse modeling of nonsinusoidal and saturated synchronous reluctance motors**

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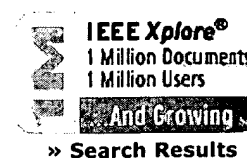
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*Bor-Jehng Kang; Chang-Ming Liaw;*

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**55 Robust quantitative speed control of a switched reluctance motor drive**

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*Zheng Hongtao; Lin Feng; Liu Liangen; Jiang Jingping; Xu Dehong;*  
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### 1 [Uncooperative congestion control](#)

Kartikeya Chandrayana, Shivkumar Kalyanaraman

 June 2004 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the joint international conference on Measurement and modeling of computer systems**, Volume 32 Issue 1

 Full text available: [pdf\(924.69 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Traditionally uncooperative rate control schemes have implied open loop protocols such as UDP, CBR, etc. In this paper we show that closed loop uncooperative rate control schemes also exist and that the current AQM proposals cannot efficiently control their mis-behavior. Moreover, these proposals require that AQM be installed at all routers in the Internet which is not only expensive but requires significant network upgrade. In this paper we show that management of uncooperative flows need not be ...

**Keywords:** congestion control, malicious behavior, optimization, re-marking, selfish flows, uncooperative, utility functions

### 2 [Neural network process control](#)

Michael J. Piovoso, Aaron J. Owens

 May 1991 **Proceedings of the conference on Analysis of neural network applications**

 Full text available: [pdf\(652.75 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

### 3 [A control theoretical approach to congestion control in packet networks](#)

Dirceu Cavendish, Mario Gerla, Saverio Mascolo

 October 2004 **IEEE/ACM Transactions on Networking (TON)**, Volume 12 Issue 5

 Full text available: [pdf\(708.31 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we introduce a control theoretical analysis of the closed-loop congestion control problem in packet networks. The control theoretical approach is used in a proportional rate controller, where packets are admitted into the network in accordance with network buffer occupancy. A Smith Predictor is used to deal with large propagation delays, common to high speed backbone networks. The analytical approach leads to accurate predictions regarding both transients as well as steady-stat ...

**Keywords:** packet networks, quality of service (QoS), stability analysis, transient analysis

4 Optimal structured feedback policies for ABR flow control using two-timescale SPSA

Shalabh Bhatnagar, Michael C. Fu, Steven I. Marcus, Pedram J. Fard

August 2001 **IEEE/ACM Transactions on Networking (TON)**, Volume 9 Issue 4

Full text available:  [pdf\(361.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Optimal structured feedback control policies for rate-based flow control of available bit rate service in asynchronous transfer mode networks are obtained in the presence of information and propagation delays, using a numerically efficient two-timescale simultaneous perturbation stochastic approximation algorithm. Models comprising both a single bottleneck node and a network with multiple bottleneck nodes are considered. A convergence analysis of the algorithm is presented. Numerical experiments ...

**Keywords:** Network of nodes, optimal structured feedback policies, rate-based ABR flow control, single bottleneck node, two-timescale SPSA

5 Control system development tools

Scott Kimbrough

January 1987 **ACM SIGAPL APL Quote Quad , Proceedings of the international conference on APL: APL in transition**, Volume 17 Issue 4

Full text available:  [pdf\(1.17 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper provides a core of APL algorithms for control system development and demonstrates their use by solving a typical control problem. In doing so it outlines useful numerical techniques for simulating dynamic systems and for solving some of the central equations of control theory. Although some sections of the paper are addressed to APL2 users, the majority of the paper applies to APL. Moreover, by doing a little extra work to handle complex numbers and by installing a &ld ...

6 A periodic Ada control kernel (PACK)

J. Ellis

January 1989 **Proceedings of the conference on Tri-Ada '89: Ada technology in context: application, development, and deployment**

Full text available:  [pdf\(1.29 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Numerous sources have questioned Ada's sufficiency in efficiently handling systems with predominantly periodic processes, especially when hard deadline scheduling is required. Several possible implementations have been suggested to address this problem. This paper describes a dual MIL-STD-1750A cockpit digital map display system which uses a Periodic Ada Control Kernel (PACK) to directly control execution of numerous periodic processes written in Ada. The PACK runs over the normal Ada Runti ...

7 Performance bonds for flow control protocols

Rajeev Agrawal, Rene L. Cruz, Clayton Okino, Rajendran Rajan

June 1999 **IEEE/ACM Transactions on Networking (TON)**, Volume 7 Issue 3

Full text available:  [pdf\(298.23 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


**Keywords:** adaptive service, burstiness, delay, guaranteed service, network calculus, queueing, regulator, scheduler, service curve

- 8 NeuroAnimator: fast neural network emulation and control of physics-based models  
Radek Grzeszczuk, Demetri Terzopoulos, Geoffrey Hinton  
July 1998 **Proceedings of the 25th annual conference on Computer graphics and interactive techniques**


Full text available:  [pdf\(28.26 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** backpropagation, dynamical systems, learning, motion control, neural networks, physics-based animation, simulation

- 9 PAC adaptive control of linear systems  
Claude-Nicolas Fiechter  
July 1997 **Proceedings of the tenth annual conference on Computational learning theory**

Full text available:  [pdf\(1.46 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

- 10 End-to-end congestion control for the internet: delays and stability  
Ramesh Johari, David Kim Hong Tan  
December 2001 **IEEE/ACM Transactions on Networking (TON)**, Volume 9 Issue 6

Full text available:  [pdf\(333.72 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Under the assumption that queueing delays will eventually become small relative to propagation delays, we derive stability results for a fluid flow model of end-to-end Internet congestion control. The theoretical results of the paper are intended to be decentralized and locally implemented: each end system needs knowledge only of its own round-trip delay. Criteria for local stability and rate of convergence are completely characterized for a single resource, single user system. Stability criteri ...

**Keywords:** Delayed systems, distributed systems, end-to-end congestion control

- 11 Performance of a collision-free local bus network having asynchronous distributed control

V. Carl Hamacher, Gerald S. Shedler

May 1980 **Proceedings of the 7th annual symposium on Computer Architecture**

Full text available:  [pdf\(593.62 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper provides an analysis of the performance of an access control scheme recently proposed by Eswaran, Hamacher, and Shedler for a local bus network. The control scheme is simple and asynchronous, and provides for collision-free communication among ports of the network. It is also efficient in the use of the bus bandwidth, in the sense that there is only a small fraction of time during which the bus is idle when there is at least one packet available for transmission. The performance ...

- 12 MDELTA - a digital program for control system analysis

B. H. Anstiss

July 1968 **Proceedings of the 5th annual workshop on Design automation**

Full text available:  [pdf\(576.64 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Design and analysis of high-order control systems requires a great deal of laborious calculations. Stability analyses are usually conducted with standard techniques such as root

locus or frequency response. The calculations involved in these analyses are generally too complex to do by hand. Graphical techniques and approximations may be used, but often introduce unacceptably large errors. The advent of modern digital computers led to the development of a great many programs to pe ...

### 13 Multiplexing issues in communication system design

C. C. Feldmeier

August 1990 **ACM SIGCOMM Computer Communication Review , Proceedings of the ACM symposium on Communications architectures & protocols**, Volume 20 Issue 4

Full text available:  [pdf\(1.30 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper considers some of the multiplexing issues in communication system design by examining overall system issues. In particular, we distinguish physical multiplexing of resources from logical multiplexing of streams. Both physical-resource multiplexing and logical multiplexing determine the service that can be provided by a communication system. We also discuss two issues affected by logical multiplexing - flow control and the relationship between control and data streams of a connect ...

### 14 Ad hoc networks: Denial of service resilience in ad hoc networks

Imad Aad, Jean-Pierre Hubaux, Edward W. Knightly

September 2004 **Proceedings of the 10th annual international conference on Mobile computing and networking**

Full text available:  [pdf\(241.63 KB\)](#)

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Significant progress has been made towards making ad hoc networks secure and DoS resilient. However, little attention has been focused on quantifying DoS resilience: Do ad hoc networks have sufficiently redundant paths and counter-DoS mechanisms to make DoS attacks largely ineffective? Or are there attack and system factors that can lead to devastating effects? In this paper, we design and study DoS attacks in order to assess the damage that difficult-to-detect attackers can cause. The first att ...

**Keywords:** DoS attacks, TCP, UDP, ad hoc networks

### 15 Monotonic evolution: an alternative to induction variable substitution for dependence analysis

Peng Wu, Albert Cohen, Jay Hoeflinger, David Padua

June 2001 **Proceedings of the 15th international conference on Supercomputing**

Full text available:  [pdf\(360.68 KB\)](#)

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We present a new approach to dependence testing in the presence of induction variables. Instead of looking for closed form expressions, our method computes *monotonic evolution* which captures the direction in which the value of a variable changes. This information is then used in the dependence test to help determine whether array references are dependence-free. Under this scheme, closed form computation and induction variable substitution can be delayed until after the dependence test ...

### 16 Local networks

William Stallings

March 1984 **ACM Computing Surveys (CSUR)**, Volume 16 Issue 1

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The rapidly evolving field of local network technology has produced a steady stream of local

network products in recent years. The IEEE 802 standards that are now taking shape, because of their complexity, do little to narrow the range of alternative technical approaches and at the same time encourage more vendors into the field. The purpose of this paper is to present a systematic, organized overview of the alternative architectures for and design approaches to local networks.

...

**17** Sticky splines: definition and manipulation of spline structures with maintained topological relations

C. W. A. M. van Overveld, Marie Luce Viaud

January 1996 **ACM Transactions on Graphics (TOG)**, Volume 15 Issue 1

Full text available:  pdf(1.50 MB)

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This paper describes an augmentation to the spline concept to account for topological relations between different spline curves. These topological relations include incidence relations, constraining the extremes of spline curves to other spline curves, and also more general geometric relations, for example, involving the tangents of spline curves in their extremes. To maintain these incidence relations, some spline curves may have to be transformed (translated, rotated, scaled), or even def ...

**Keywords:** affine and nonaffine mappings, branching structures, drawing system, free-form deformation, geometric properties, splines, topological constraints

**18** Enhanced reserved polling multiaccess technique for multimedia personal communication systems

Benny Bing, Regu Subramanian

May 1999 **Wireless Networks**, Volume 5 Issue 3

Full text available:  pdf(212.85 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This article describes a multiaccess technique which allows the transport of multimedia information across global personal communication systems (PCS). Impressive growth in the application of wireless technologies to telecommunications has sparked active research on a new generation of mobile radio networks projected to handle heterogeneous traffic types. One of the key requirements of these advanced systems is the multiaccess protocol which must guarantee quality of service and provide eff ...

**19** A min, + system theory for constrained traffic regulation and dynamic service guarantees

Cheng Shang Chang, Rene L. Cruz, Jean Yves Le Boudec, Patrick Thiran

December 2002 **IEEE/ACM Transactions on Networking (TON)**, Volume 10 Issue 6

Full text available:  pdf(878.82 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

By extending the system theory under the (min, +) algebra to the time-varying setting, we solve the problem of constrained traffic regulation and develop a calculus for dynamic service guarantees. For a constrained traffic-regulation problem with maximum tolerable delay  $d$  and maximum buffer size  $q$ , the optimal regulator that generates the output traffic conforming to a subadditive envelope  $f$  and minimizes the number of discarded packets is a concatenation of the  $g$ -cli ...

**Keywords:** (min, +) algebra, buffer overflow, network calculus, packet losses, performance analysis, traffic shaping



**20** Random early detection gateways for congestion avoidance

Sally Floyd, Van Jacobson

August 1993 **IEEE/ACM Transactions on Networking (TON)**, Volume 1 Issue 4

Full text available:  pdf(1.80 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

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## 21 [Special issue on ICML: Lyapunov design for safe reinforcement learning](#)

Theodore J. Perkins, Andrew G. Barto

 March 2003 **The Journal of Machine Learning Research**, Volume 3

 Full text available: [pdf\(246.11 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Lyapunov design methods are used widely in control engineering to design controllers that achieve qualitative objectives, such as stabilizing a system or maintaining a system's state in a desired operating range. We propose a method for constructing safe, reliable reinforcement learning agents based on Lyapunov design principles. In our approach, an agent learns to control a system by switching among a number of given, base-level controllers. These controllers are designed using Lyapunov domain ...

## 22 [Criminal justice dynamics: A planning model](#)

Jonathan F. Bard

 December 1977 **Proceedings of the 9th conference on Winter simulation - Volume 1**

 Full text available: [pdf\(870.43 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The use of quantitative methods in criminal justice planning is growing rapidly. This study employs the modeling technique of "system dynamics" to simulate a local criminal justice system and demonstrates the usefulness of that technique in assessing the merits of alternative criminal justice policies and procedures. In formulating the model, we discuss the information feedback characteristics of the system as well as the qualitative aspects of crime control in light of popular ...

## 23 [Topology & MAC: CDMA-based MAC protocol for wireless ad hoc networks](#)

Alaa Muqattash, Marwan Krunz

 June 2003 **Proceedings of the 4th ACM international symposium on Mobile ad hoc networking & computing**

 Full text available: [pdf\(308.12 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We propose a CDMA-based power controlled medium access protocol for mobile ad hoc networks (MANETs). Unlike previously proposed protocols, ours accounts for the multiple access interference (MAI), thereby addressing the notorious near-far problem that undermines the throughput performance in MANETs. Channel-gain information obtained from overheard RTS and CTS packets over an out-of-band control channel is used to dynamically bound the transmission power of mobile terminals in the vicinity of a r ...



**Keywords:** CDMA, ad hoc networks, code assignment, multi-access interference, near-far problem, power control

24 A CDMA-based radio interface for third generation mobile systems

Sergio Barberis, Ermanno Berruto

June 1997 **Mobile Networks and Applications**, Volume 2 Issue 1

Full text available:  pdf(257.24 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper deals with the use of a CDMA-based radio interface in third generation mobile systems (Universal Mobile Telecommunications System—UMTS, and Future Public Land Mobile Telecommunications System—FPLMTS). The paper is not intended as a detailed analysis of the radio interface performance, but as an overview of the main issues arising in a typical CDMA-based mobile system, discussing the different available technical solutions. First of all, the basic requirements of the r ...



25 Animation: SnakeToonz: a semi-automatic approach to creating cel animation from video

Aseem Agarwala

June 2002 **Proceedings of the 2nd international symposium on Non-photorealistic animation and rendering**

Full text available:  pdf(639.81 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

SnakeToonz is an interactive system that allows children and others untrained in cel animation to create two-dimensional cartoons from video streams and images. The ability to create cartoons has traditionally been limited to professional animation houses and trained artists. SnakeToonz aims to give anyone with a video camera and a computer the ability to create compelling cel animation. This is done by combining constraints of the cartooning medium with simple user input and analysis of that in ...



26 Perceptual user interfaces: things that see

James L. Crowley, Joëlle Coutaz, François Bérard

March 2000 **Communications of the ACM**, Volume 43 Issue 3

Full text available:  pdf(732.99 KB)  html(36.13 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



27 Information Systems in Perspective

J. D. Aron

December 1969 **ACM Computing Surveys (CSUR)**, Volume 1 Issue 4

Full text available:  pdf(2.22 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



28 Move-to-rear list scheduling: a new scheduling algorithm for providing QoS guarantees

John Bruno, Eran Gabber, Banu Özden, Abraham Silberschatz

November 1997 **Proceedings of the fifth ACM international conference on Multimedia**

Full text available:  pdf(2.17 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



29 Survivable mobile wireless networks: issues, challenges, and research directions

James P. G. Sterbenz, Rajesh Krishnan, Regina Rosales Hain, Alden W. Jackson, David Levin, Ram Ramanathan, John Zao



September 2002 **Proceedings of the ACM workshop on Wireless security**

Full text available:  [pdf\(371.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


In this paper we survey issues and challenges in enhancing the survivability of mobile wireless networks, with particular emphasis on military requirements\*. Research focus on three key aspects can significantly enhance network survivability: (i) establishing and maintaining survivable topologies that strive to keep the network connected even under attack, (ii) design for end-to-end communication in challenging environments in which the path from source to destination is not wholly available at ...

**Keywords:** ad hoc routing, asymmetric channel, disconnected, eventual connectivity, eventual stability, fault tolerance, low probability of detection (LPD), mobile wireless network, satellite, security, store and haul forwarding, survivability, topology, weak and episodic connectivity

30 Algorithm 747: a Fortran subroutine to solve the eigenvalue assignment problem for multiinput systems using state feedback

George Miminis, Helmut Roth

September 1995 **ACM Transactions on Mathematical Software (TOMS)**, Volume 21 Issue 3

Full text available:  [pdf\(1.55 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

The implementation of an algorithm for the computation of a state feedback for multiinput linear systems, resulting in a closed-loop matrix with a specified self-conjugate set of eigenvalues, is presented. The computation uses only real arithmetic, assigning complex conjugate eigenvalues in one double step. The implementation uses level-1 BLAS routines where possible. A brief description of the algorithm is also given.

**Keywords:** deflation, double steps, eigenvalue assignment, numerical efficiency, pole assignment

31 Automated aids for reliable software

Donald J. Reifer

April 1975 **ACM SIGPLAN Notices , Proceedings of the international conference on Reliable software**, Volume 10 Issue 6

Full text available:  [pdf\(1.18 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Recent investigations on the use of automation to realize the twin objectives of cost reduction and reliability improvement for computer programs developed for the U. S. Air Force are reported. The concepts of reliability and automation as they pertain to software are explained. Then, over twenty automated tools and techniques (aids) identified by this investigation are described and categorized. Based on the information reviewed, an assessment of the state of the technology is made. Finally ...

**Keywords:** Automation, Programming tools, Software reliability, programming techniques

32 Connectionless data transmission

A. Lyman Chapin

April 1982 **ACM SIGCOMM Computer Communication Review**, Volume 12 Issue 2

Full text available:  [pdf\(2.16 MB\)](#) Additional Information: [full citation](#), [abstract](#)

The increasingly familiar and ubiquitous Reference Model of Open Systems Interconnection,

currently being considered by the International Organization for Standardization (ISO) as a Draft International Standard (DIS), is based on the explicit assumption that a "connection" -- an association between two or more communication entities, possessing certain characteristics over and above those possessed by the entities themselves - is required for the transfer of data in an Open Systems Interconnecti ...

### 33 Simulation modelling support via network based concepts

Stephen C. Mathewson

December 1990 **Proceedings of the 22nd conference on Winter simulation**

Full text available:  pdf(953.01 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



### 34 The future of our profession

Bo Dahlbom, Lars Mathiassen

June 1997 **Communications of the ACM**, Volume 40 Issue 6


Full text available:  pdf(432.38 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



### 35 Dynamic bandwidth allocation in a network

K. Maly, C. Overstreet, X. Qiu, D. Tang

August 1988 **ACM SIGCOMM Computer Communication Review , Symposium proceedings on Communications architectures and protocols**, Volume 18 Issue 4

Full text available:  pdf(1.06 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Recently protocols have been introduced which enable us to integrate periodic traffic (voice or video) and aperiodic traffic (data) and to extend the size of local area networks without any loss in speed and capacity. One of these, the DRAMA protocol, is based on broadband technology and allows for dynamic allocation of bandwidth to clusters of nodes in the total network. In this paper we propose a distributed algorithm to allocate bandwidth in a fair manner, where we have ...



### 36 Workflow management systems for financial services

Thomas Schael, Buni Zeller

December 1993 **Proceedings of the conference on Organizational computing systems**

Full text available:  pdf(1.46 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



**Keywords:** business process automation, computer supported cooperative work, customer satisfaction, groupware, office automation, office procedure, process reengineering, workflow management technology, workgroup computing

### 37 Fast dynamic simulation of flexible and rigid bodies with kinematic constraints

Achim Hummel, Bernd Girod

September 1997 **Proceedings of the ACM symposium on Virtual reality software and technology**

Full text available:  pdf(934.30 KB) Additional Information: [full citation](#), [references](#), [index terms](#)



### 38 MaRs: a parallel graph reduction multiprocessor



M. Castan, A. Contessa, E. Cousin, C. Coustet, B. Lecussan  
June 1988 **ACM SIGARCH Computer Architecture News**, Volume 16 Issue 3

Full text available:  pdf(763.85 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

We describe the MaRS machine: a parallel, distributed control multiprocessor for graph reduction using a functional machine language. The object code language is based on an optimized set of combinators, and its functional character allows an automatic parallelisation of the execution. A programming language, "MaRS LISP", has also been developed. A prototype of MaRS is currently being designed in VLSI 1.5-micron CMOS technology with 2 levels of metal, by means of a CAD system. The machine uses t ...

### 39 [Network architecture and traffic transport for integrated wireless communications over enterprise networks](#)

Henry C.B. Chan, Victor C.M. Leung, Robert W. Donaldson  
August 1997 **Wireless Networks**, Volume 3 Issue 3

Full text available:  pdf(455.85 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A novel network architecture based on the IEEE 802.6 metropolitan area networks (MAN) is proposed to integrate the wireless and wired segments of a regional enterprise network (REN) within a city. This architecture functions like a distributed switch for all types of services, reducing traffic congestion by sharing the high capacity link dynamically and facilitating signaling, mobility management, call processing and network management through its distributed functions, transport facilities ...

### 40 [Two-timescale simultaneous perturbation stochastic approximation using deterministic perturbation sequences](#)

Shalabh Bhatnagar, Michael C. Fu, Steven I. Marcus, I-Jeng Wang  
April 2003 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 13 Issue 2

Full text available:  pdf(294.83 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Simultaneous perturbation stochastic approximation (SPSA) algorithms have been found to be very effective for high-dimensional simulation optimization problems. The main idea is to estimate the gradient using simulation output performance measures at only *two* settings of the  $N$ -dimensional parameter vector being optimized rather than at the  $N + 1$  or  $2N$  settings required by the usual one-sided or symmetric difference estimates, respectively. The two settings of the para ...

**Keywords:** Hadamard matrices, SPSA, Simulation optimization, deterministic perturbations, stochastic approximation, two-timescale algorithms

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#### 41 [Multimodal applications: Elvis: situated speech and gesture understanding for a robotic chandelier](#)

Joshua Juster, Deb Roy

 October 2004 **Proceedings of the 6th international conference on Multimodal interfaces**

 Full text available: [pdf\(404.36 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We describe a home lighting robot that uses directional spotlights to create complex lighting scenes. The robot senses its visual environment using a panoramic camera and attempts to maintain its target goal state by adjusting the positions and intensities of its lights. Users can communicate desired changes in the lighting environment through speech and gesture (e.g., "Make it brighter over there"). Information obtained from these two modalities are combined to form a goal, a desired change ...

**Keywords:** gesture, grounded, input methods, lighting, multimodal, natural interaction, situated, speech

#### 42 [IP packet generation: statistical models for TCP start times based on connection-rate superposition](#)

William S. Cleveland, Dong Lin, Don X. Sun

 June 2000 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 2000 ACM SIGMETRICS international conference on Measurement and modeling of computer systems**, Volume 28 Issue 1

 Full text available: [pdf\(998.16 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

TCP start times for HTTP are nonstationary. The nonstationarity occurs because the start times on a link, a point process, are a superposition of source traffic point processes, and the statistics of superposition changes as the number of superposed processes changes. The start time rate is a measure of the number of traffic sources. The univariate distribution of the inter-arrival times is approximately Weibull, and as the rate increases, the Weibull shape parameter goes to 1, an exponenti ...

#### 43 [Constructing Symbolic Models for the Input/Output Behavior of Periodically Time-Varying Systems Using Harmonic Transfer Matrices](#)

P. Vanassche, G. Gielen, W. Sansen

 March 2002 **Proceedings of the conference on Design, automation and test in Europe**

Full text available:  [pdf\(199.33 KB\)](#) Additional Information: [full citation](#), [abstract](#)

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A new technique is presented for generating symbolic expressions for the harmonic transfer functions of linear periodically time-varying (LPTV) systems, like mixers and PLL's. The algorithm, which we call Symbolic HTM, is based on the organisation of the harmonic transfer functions into a harmonic transfer matrix. This representation allows to manipulate LPTV systems in a way that is similar to linear time-invariant (LTI) systems, making it possible to generate symbolic expressions which relate the ove ...

#### 44 MSXmin: a modular multicast ATM packet switch with low delay and hardware complexity

Rajgopal Kannan, Sibabrata Ray

June 2000 **IEEE/ACM Transactions on Networking (TON)**, Volume 8 Issue 3

Full text available:  [pdf\(340.70 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** asynchronous transfer mode, multistage interconnection networks, routing, switching circuits

#### 45 A new approach for surface intersection

Dinesh Manocha, John Canny


May 1991 **Proceedings of the first ACM symposium on Solid modeling foundations and CAD/CAM applications**

Full text available:  [pdf\(999.92 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

#### 46 Hierarchical replacement decisions in hierarchical stores

Özalp Babaoğlu

August 1982 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1982 ACM SIGMETRICS conference on Measurement and modeling of computer systems**, Volume 12 Issue 3


Full text available:  [pdf\(636.40 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

One of the primary motivations for implementing virtual memory is its ability to automatically manage a hierarchy of storage systems with different characteristics. The composite system behaves as if it were a single-level system having the more desirable characteristics of each of its constituent levels. In this paper we extend the virtual memory concept to within each of the levels of the hierarchy. Each level is thought of as containing two additional levels within it. This hierarchy is no ...

#### 47 An agent architecture for vehicle routing problems

Sam R. Thangiah, Olena Shmygelska, William Mennell

March 2001 **Proceedings of the 2001 ACM symposium on Applied computing**

Full text available:  [pdf\(442.30 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

**Keywords:** distributed computing, heuristics, intelligent agents, networking and vehicle routing problems

#### 48 Closed loop stability controls for s-aloha satellite communications

Mario Gerla, Leonard Kleinrock

September 1977 **Proceedings of the fifth symposium on Data communications**

Full text available:  [pdf\(797.29 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

S-ALOHA channels are intrinsically unstable and must be equipped with proper controls. The function of the controls is to dynamically adjust the ALOHA channel transmission gates in accordance with the dynamic load fluctuations. The purpose of the controls is to protect the channel from unstable behavior while optimizing channel efficiency and performance during normal operating conditions. Two control algorithms are proposed: the Closed Loop Control-Collision Detect (CLC-CD) algo ...

**49** Laplace transform computer program

Robert H. Soli

January 1969 **Proceedings of the 6th annual conference on Design Automation**

Full text available:  [pdf\(500.85 KB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a FORTRAN IV Laplace transform computer program, various algorithms used in the program, and an error evaluation of various portions of the program. It is a unified, 1000-card program that provides virtually all of the power associated with classical Laplace transform analysis. A further feature of the program is that the systems to be analyzed are described naturally by using Laplace transforms for the coding. An example is that the impedance of a series RLC circuit ca ...

**50** Probability models for genome rearrangement and linear invariants for phylogenetic inference

David Sankoff, Mathieu Blanchette

April 1999 **Proceedings of the third annual international conference on Computational molecular biology**


Full text available:  [pdf\(1.04 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**51** Evaluation of a distribution center tow-line material handling system through simulation modeling

Jay Bakst, Joel Hoffner, Kris Jacoby

November 1996 **Proceedings of the 28th conference on Winter simulation**


Full text available:  [pdf\(779.93 KB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#)

**52** DAMN - a prototype program for the Dynamic Analysis of Mechanical Networks

Milton A. Chace

June 1970 **Proceedings of the 7th workshop on Design automation**

Full text available:  [pdf\(990.15 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Effective computer-aided design of engineering systems requires comprehensive computer applications software which conveniently adapts to the particular engineering design considered. This paper discusses initial experience with a program of this kind intended for computer-aided design of machine-like mechanical systems, and outlines the use of a time-shared graphic terminal for schematic display of program output. This paper is a successor to one presented at the 1969 Design Automation Wor ...

**53** Parameter identification methods for metamodeling simulations

Don Caughlin

November 1996 **Proceedings of the 28th conference on Winter simulation**

Full text available:  [pdf\(714.50 KB\)](#) Additional Information: [full citation](#), [references](#)

#### 54 Document interface

Rob Haimes

October 1994 **interactions**, Volume 1 Issue 4

Full text available:  [pdf\(505.96 KB\)](#) Additional Information: [full citation](#), [index terms](#), [review](#)

#### 55 Feature-based surface parameterization and texture mapping

Eugene Zhang, Konstantin Mischaikow, Greg Turk

January 2005 **ACM Transactions on Graphics (TOG)**, Volume 24 Issue 1

Full text available:  [pdf\(419.27 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Surface parameterization is necessary for many graphics tasks: texture-preserving simplification, remeshing, surface painting, and precomputation of solid textures. The stretch caused by a given parameterization determines the sampling rate on the surface. In this article, we present an automatic parameterization method for segmenting a surface into patches that are then flattened with little stretch.

Many objects consist of regions of relatively simple shapes, each of which has a natu ...

**Keywords:** Surface parameterization, segmentation, texture mapping, topology

#### 56 Adaptive multivariate three-timescale stochastic approximation algorithms for simulation based optimization

Shalabh Bhatnagar

January 2005 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 15 Issue 1

Full text available:  [pdf\(258.84 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


We develop in this article, four adaptive three-timescale stochastic approximation algorithms for simulation optimization that estimate both the gradient and Hessian of average cost at each update epoch. These algorithms use four, three, two, and one simulation(s), respectively, and update the values of the decision variable and Hessian matrix components simultaneously, with estimates based on the simultaneous perturbation methodology. Our algorithms use coupled stochastic recursions that procee ...

**Keywords:** Adaptive three-timescale stochastic approximation algorithms, Newton-type algorithms, simulation optimization, simultaneous perturbation stochastic approximation

#### 57 The open verifier framework for foundational verifiers

Bor-Yuh Evan Chang, Adam Chlipala, George C. Necula, Robert R. Schneck

January 2005 **Proceedings of the 2005 ACM SIGPLAN international workshop on Types in languages design and implementation**

Full text available:  [pdf\(351.32 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present the Open Verifier approach for verifying untrusted code using customized verifiers. This approach can be viewed as an instance of foundational proof-carrying code where an untrusted program can be checked using the verifier most natural for it instead of using a single generic type system. In this paper we focus on a specialized architecture



designed to reduce the burden of expressing both type-based and Hoare-style verifiers. A new verifier is created by providing an untrusted executa ...

**Keywords:** language-based security, proof-carrying code, typed assembly language

### 58 Shape analysis: Fair morse functions for extracting the topological structure of a surface mesh

Xinlai Ni, Michael Garland, John C. Hart

August 2004 **ACM Transactions on Graphics (TOG)**, Volume 23 Issue 3

Full text available:  [pdf\(1.34 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)


Morse theory reveals the topological structure of a shape based on the critical points of a real function over the shape. A poor choice of this real function can lead to a complex configuration of an unnecessarily high number of critical points. This paper solves a relaxed form of Laplace's equation to find a "fair" Morse function with a user-controlled number and configuration of critical points. When the number is minimal, the resulting Morse complex cuts the shape into a disk. Specifying addi ...

**Keywords:** Morse theory, atlas generation, computational topology, surface parameterization, texture mapping

### 59 Performance analysis of high-speed digital buses for multiprocessing systems

W. L. Bain, S. R. Ahuja

May 1981 **Proceedings of the 8th annual symposium on Computer Architecture**

Full text available:  [pdf\(1.16 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Current multiprocessing systems are often organized by connecting several devices with similar characteristics (usually processors) to a common bus. These devices present access with minimal delay; access is controlled by the bus arbitration algorithm. This paper presents a probabilistic analysis of several arbitration algorithms according to several criteria that reflect their relative performances in (1) rendering equal service to all competing devices and (2) allocating available bus ban ...

### 60 Real-time rendering: Interactive rendering of suggestive contours with temporal coherence

Doug DeCarlo, Adam Finkelstein, Szymon Rusinkiewicz

June 2004 **Proceedings of the 3rd international symposium on Non-photorealistic animation and rendering**

Full text available:  [pdf\(382.84 KB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#)

Line drawings can convey shape using remarkably minimal visual content. Suggestive contours, which are lines drawn at certain types of view-dependent surface inflections, were proposed recently as a way of improving the effectiveness of computer-generated line drawings. This paper extends previous work on static suggestive contours to dynamic and real-time settings. We analyze movement of suggestive contours with respect to changes in viewpoint, and offer techniques for improving the quality of ...

**Keywords:** contours, differential geometry, graphics hardware, line drawings, non-photorealistic rendering, silhouettes

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### Patent 5091843: Nonlinear multivariable control system

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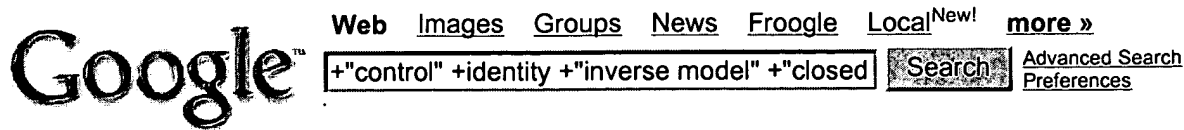
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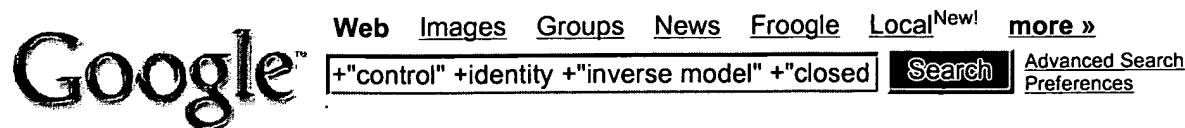
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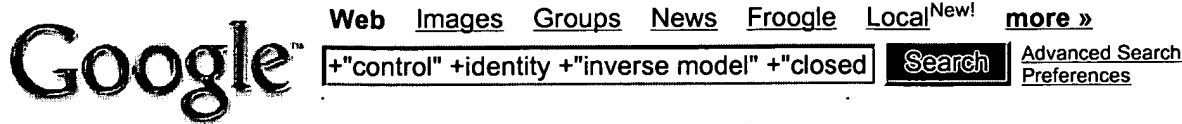
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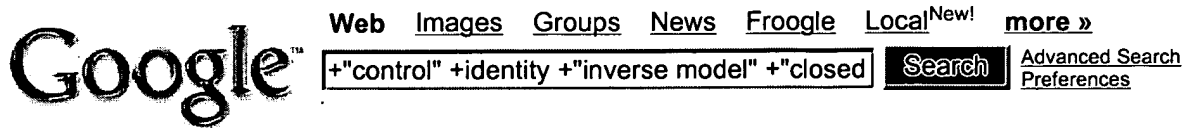
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By this means, the experimenters had complete **control** over the number, size and ..... all computations reported on here, C was simply the  $K \times K$  **identity** matrix, which ...  
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**control**. ..... Both accuracy and repeatability are affected by the **control** resolution, which is the smallest programmable motion of the manipulator.  
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... for ongoing movement **control** (eg, Bullock, Grossberg, and Guenther, 1993; Guenther, 1994, 1995a,b) or to train an **inverse model** to **control** the articulators (eg ...  
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... in series with the plant yields the **identity** transformation. That is, an **inverse model** is any system that takes an ... at time n) and provides a **control** signal to ...

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Notice how the **control** law only changes the stimulus-response pair corresponding ..... folk, and the various authors who maintain an internet **identity** and cooperate ...

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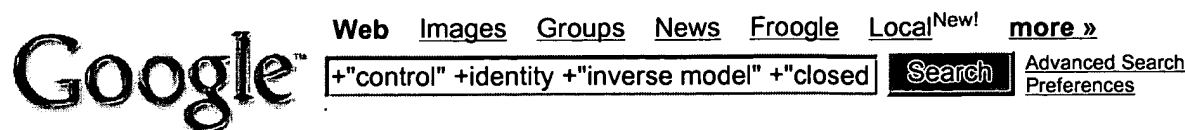
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... 1995a,b) or to train an **inverse model** to **control** ..... and detailed for an arm movement **control** model in ..... configurations that preserve the perceptual **identity** of a ...  
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Figure 3.1: Pseudo-closed-loop **control**.....31 ..... Entire **Control** Loop:  
 Controller ... Target System (**Identity** Mapping) { i ...  
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... plus arm) act as an **identity** mapping -- whatever ..... be of use not only for the **control** of motor ... learning (specifically, the acquisition of a good **inverse model**).  
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Information about object **identity** is also sent to the .... structure devoted solely to the **control** of grasping ..... The **inverse model** (indicated with VMM for visuo-motor ...  
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design procedures within **control** theory have been developed to explicitly handle stochasticity and consequently compute a **closed-loop** solution that prescribes ...  
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66 4.6 Discrete-time implementation of the plant **inverse model**. . . . 67 ..... user, and the **control** law. ... The closer  $T(j\omega)$  is to the  $5 \times 5$  **identity** matrix, I ...  
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With a given controller it is possible, by comparing the achieved **closed-loop** with the designed **closed-loop**, to set up a truly **control**-relevant identification ...  
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... either as an open-loop or **closed loop**, most of ..... of the system in a model based **control** work frame and the second approach utilizes an **inverse model** of the ...  
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18. Attachment I. Task 1.1 Adaptive Inverse **Control** Algorithms Page 19. 1 ...

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Affine **Inverse Model** Nonlinear Rotorcraft Model .... were considered for the robust **control** design, and ..... moment aerodynamics, the over- all **closed-loop** system does ...

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